No. 8800060

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Busch Agricultural Resources, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BARLEY

'B1203'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington, D. C. *this* 29th *day of* March *in the year of our Lord one thousand nine hundred and* ninety-one.

Attest:

Kenneth A. Evans

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Ed Madigan

Secretary of Agriculture

APPROVAL EXPIRES 4-30-88

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

FORM APPROVED: OMB NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION	3. VARIETY NAME
Busch Agricultural Resources, Inc.	2B80-157	B1203

4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code)	5. PHONE (Include area code)	FOR OFFICIAL USE ONLY
806 N. 2nd Street Berthoud, Colorado 80513	(303)532-3721	PVPO NUMBER 8800060

6. GENUS AND SPECIES NAME	7. FAMILY NAME (Botanical)	FILING
Hordeum vulgare L.	Gramineae	DATE: February 1, 1988 TIME: 1:30 ☐ A.M. ☑ P.M.

8. KIND NAME	9. DATE OF DETERMINATION	FEES RECEIVED
Spring Barley	1=1980 2=1986	AMOUNT FOR FILING: $1800.00 DATE: February 1, 1988 AMOUNT FOR CERTIFICATE: $200.00 DATE: Feb. 4, 1991

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*

Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION	12. DATE OF INCORPORATION
Delaware	1/1/81

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS

Dr. Melvern K. Anderson
Busch Agricultural Resources, Inc.
806 N. 2nd Street
Berthoud, Colorado 80513 (303)532-3721

or

C. Bruns
Nickerson American Plant Breeders Inc.
806 N. 2nd Street
Berthoud, CO

PHONE *(Include area code)*

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

a. ☒ Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
b. ☒ Exhibit B, Novelty Statement.
c. ☒ Exhibit C, Objective Description of Variety *(Request form from Plant Variety Protection Office.)*
d. ☒ Exhibit D, Additional Description of Variety.
e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership. f. Exhibit F. Quality and Agronomic Data

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act.)* ☒ Yes *(If "Yes," answer items 16 and 17 below)* ☐ No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?	17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☒ Yes ☐ No	☒ Foundation ☒ Registered ☒ Certified

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?

☐ Yes *(If "Yes," give date)*
☒ No

19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?

☐ Yes *(If "Yes," give names of countries and dates)*
☒ No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT	DATE
Melvern K. Anderson, Busch Agl. Res, Inc.	1-20-88
SIGNATURE OF APPLICANT	DATE

FORM WA-470 (7-84) (Edition of 3-84 is obsolete.)

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EXHIBIT A.

ORIGIN AND BREEDING HISTORY OF B1203

PEDIGREE: S7290//Klages/Summit

DATE OF CROSS: The single cross was made in the spring 1977 greenhouse; the three-way cross was completed in the fall 1977 greenhouse. The F1 was grown in the spring 1978 greenhouse to produce F2 seed.

HISTORY: F2 plants were grown at Twin Falls, Idaho in 1978. A single seed from an F2 head selection was advanced by single seed descent in the fall 1978 greenhouse. An F4 head-row was selected in Twin Falls, Idaho in 1979. Malting quality prediction tests on remnant F4 seed assisted in the selection of an F5 seed increase plot in Christchurch, New Zealand for yield testing an F2 derived F6 bulk at Berthoud, Colorado and Nampa, Idaho in 1980. This line advanced to second year yield trials in 1981.

In 1982, 300 head selections were made to initiate purification and multiplication. Of these 300 head-rows 258 rows were selected. The purified breeder seed sources served as yield trial seed. B1203 was tested in yield trials from 1980 thru 1987 at Twin Falls, Boise, or Idaho Falls, Idaho and Berthoud, Colorado. B1203 has not been given to any outside testing sources because it is very low in viscosity, an extremely important brewing charateristic.

Purification was initiated in 1983. There were 300 head-rows grown at our Berthoud, Colorado location and 258 were selected to be bulked together as the initial breeder seed stock. An additional one hundred head-rows were grown in 1984 with ninety-seven being selected to be bulked as an additional breeder seed stock. In 1986, 1,768 pounds of breeder seed was produced. Foundation seed will be produced during the summer of 1988 at Fairfield, Montana.

Future head-rows will be grown as necessary to constitute Breeder seed. B1203 is uniform and stable. Less than .5% of the plants were rogued from the Breeder seed field in 1986. 98% of the rogued variant plants were approximately 3 centimeters taller than B1203. Less than .3% total variant plants may be encountered in subsequent generations.

EXHIBIT B.

NOVELTY STATEMENT

B1203 is most similar to the spring barleys 'B1202' and 'Klages'. However, it can be distinquished from both varieties by the following morphological charateristics:

- B1203 has a drooping flag leaf. B1202 has an upright flag leaf.
- B1203's glume hair covering is confined to a band. B1202's glume hair completely covers the glume.
- B1203 has lower viscosity than B1202 or Klages, (see Quality data page 1).
- B1203 is 6 centimeters shorter than Klages, (see statistical data page 2).

STUDENT-T TABLE FOR WORT VISCOSITY

B1203 VS.KLAGES

VARIETY	N	MEAN	STANDARD DEVIATION	STANDARD ERROR	T	DF	PROB>T
B1203	8	1.414	0.0311	0.0110	2.8672	14	0.0124*
KLAGES	8	1.466	0.0414	0.0146			

* THE DIFFERENCE IN MEANS IS SIGNIFICANT AT THE 5% LEVEL

01/14/88
STUDENT/LJW

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STUDENT-T TABLE FOR PLANT HEIGHT(CM)

B1203 VS. KLAGES

VARIETY	N	MEAN	STANDARD DEVIATION	STANDARD ERROR	T	DF	PROB>T
B1203	20	87.6	3.2112	0.7181	5.6715	38	0.0001**
KLAGES	20	93.9	3.7592	0.8406			

** THE DIFFERENCE IN MEANS IS SIGNIFICANT AT THE 1% LEVEL

01/14/88
STUDENT/LJW

'B1203'

FORM GR-470-5 (11-1-72)

FORM APPROVED. OMB NO. 40-R3712

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

EXHIBIT C (Barley)

OBJECTIVE DESCRIPTION OF VARIETY

BARLEY (*HORDEUM VULGARE*)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)
Busch Agricultural Resources, Inc.

ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*)
806 N. 2nd Street
Berthoud, CO 80513

FOR OFFICIAL USE ONLY
PVPO NUMBER 8800060
VARIETY NAME OR TEMPORARY DESIGNATION

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (i.e. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. GROWTH HABIT:

[1] 1 = SPRING 2 = FACULTATIVE WINTER 3 = WINTER [2] Early Growth: 1 = PROSTRATE 2 = SEMIPROSTRATE 3 = ERECT

2. MATURITY (50% Flowering):

[2] 1 = EARLY (California Mariout) 2 = MIDSEASON (Betzes) 3 = LATE (Frontier)

[ ] **Equal to Klages
No. of days *Earlier* than ..... [ ]
[2] No. of days *Later* than ..... [9]
1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON 5 = PIROLINE 6 = PRIMUS 7 = UNITAN 8=Klages 9=Clark

3. PLANT HEIGHT (From soil level to top of head):

[3] 1 = SEMIDWARF 2 = SHORT (California Mariout) 3 = MEDIUM TALL (Betzes) 4 = TALL (Conquest)

[0][6] Cm. *Shorter* than ..... [8]
[ ][ ] Cm. *Taller* than ..... [ ]
1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON 5 = PIROLINE 6 = PRIMUS 7 = UNITAN 8=Klages

4. STEM:

[1] Exertion (*Flag to spike at maturity*): 1 = 0 - 3 cm. 2 = 3 - 10 cm. 3 = 10 - 15 cm. [1] Anthocyanin: 1 = ABSENT 2 = PRESENT

[0][5] NO. OF NODES (Originating from node above ground)

[1-2] Collar Shape: 1 = CLOSED 2 = V-SHAPED 3 = OPEN 4 = MODIFIED CLOSED OR OPEN [1] Shape of Neck: 1 = STRAIGHT 2 = SNAKY 3 = OTHER (Specify) _____

5. LEAF:

[1] Basal leaf sheath (*seedling*): 1 = GLABROUS 2 = PUBESCENT [1] Position of flag leaf (*at boot stage*): 1 = DROOPING 2 = UPRIGHT

[2] Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY 3 = WAXY [1][2] MM. WIDTH (First leaf below flag leaf)

[2][1] CM. LENGTH (First leaf below flag leaf) [2] Anthocyanin in leaf sheath: 1 = ABSENT 2 = PRESENT

6. HEAD:

[1] Type: 1 = TWO-ROWED 2 = SIX-ROWED [1] Density: 1 = LAX 2 = ERECT (Not dense) 3 = ERECT (Dense)

[2] Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER (Specify) _____ [2] Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY 3 = WAXY

[1] Lateral Kernels Overlap: 1 = NONE 2 = AT TIP 3 = 1/4 - 1/2 OF HEAD [3] Rachis (*Hair on edge*): 1 = LACKING 2 = FEW 3 = COVERED

7. GLUME:

[2] Length: 1 = 1/3 OF LEMMA 2 = 1/2 OF LEMMA 3 = MORE THAN 1/2 OF LEMMA [3] Hairs: 1 = NONE 2 = SHORT 3 = LONG

[3] Hair covering: 1 = NONE 2 = RESTRICTED TO MIDDLE 3 = CONFINED TO BAND 4 = COMPLETELY COVERED

[2] Awns: 1 = LESS THAN EQUAL TO LENGTH OF GLUMES 2 = EQUAL TO LENGTH OF GLUMES 3 = MORE THAN EQUAL TO LENGTH OF GLUMES

[3] Awn Surface: 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH

'B1203'

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FORM GR-470-5 (Reverse)

8. LEMMA:

[5] Awn: 1 = AWNLESS 2 = AWNLETS ON CENTRAL ROWS, AWNLESS ON LATERAL ROWS 3 = SHORT ON CENTRAL ROWS, AWNLETS ON LATERAL ROWS 4 = SHORT (less than equal to length of spike) 5 = LONG (longer than spike) 6 = HOODED

[3] Awn Surface: 0 = AWNLESS 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH

[2] Teeth: 1 = ABSENT 2 = FEW 3 = NUMEROUS

[1] Hair: 1 = ABSENT 2 = PRESENT

[1] Shape of base: 1 = DEPRESSION 2 = SLIGHT CREASE 3 = TRANSVERSE CREASE

[2] Rachilla Hairs: 1 = SHORT 2 = LONG

9. STIGMA:

[2] Hairs: 1 = FEW 2 = MANY

10. SEED:

[2] Type: 1 = NAKED 2 = COVERED

[1] Hairs on Ventral Furrow: 1 = ABSENT 2 = PRESENT

[4] Length: 1 = SHORT (8.0 mm.) 2 = SHORT TO MIDLONG (7.5 - 9.0 mm.) 3 = MIDLONG (8.5 - 9.5 mm.) 4 = MIDLONG TO LONG (9.0 - 10.5 mm.) 5 = LONG (10.0 mm.)

[3] Wrinkling of hull: 1 = NAKED 2 = SLIGHTLY WRINKLED 3 = SEMIWRINKLED 4 = WRINKLED

[1] Aleurone Color: 1 = COLORLESS (White or Yellow) 2 = BLUE

[0][0] PERCENT ABORTIVE **none found in 200 gram sample.

[4][6] GMS. PER 1000 SEEDS

11. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant) 3=Moderately Susceptible 4=Moderately Resistant

[0] SEPTORIA	[3] NET BLOTCH	[0] SPOT BLOTCH	[4] POWDERY MILDEW
[0] LOOSE SMUT	[0] BACTERIAL BLIGHT	[0] COVERED SMUT	[0] FALSE LOOSE SMUT
[0] STEM RUST	[0] LEAF RUST	[0] SCAB	[0] SCALD
[0] AY	[0] BSMV	[0] BYDV	[--] OTHER (Specify)

12. INSECT: (0 = Not tested, 1 = Susceptible 2 = Resistant)

[0] GREEN BUG	[0] ENGLISH GRAIN APHID	[0] CHINCH BUG	[0] ARMYWORM
[0] GRASS HOPPERS	[0] CERIAL LEAF BETTLE	[0] OTHER (Specify)	

HESSIAN FLY RACES: [0] GP [0] A [0] B [0] C [0] D [0] E [0] F [0] G

13. CHEMICAL (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[0] DDT [--] OTHER (Specify)

14. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	B1202	Seed size	B1202
Leaf size	B1202	Coleoptile elongation	B1202
Leaf color	B1202	Seedling pigmentation	B1202
Leaf carriage	Bridger 82		

REFERENCES: The following publications may be used as a reference aid for the standardization of character descriptions and terms used in this form:

1. Wiebe, G. A., and D. A. Reid, 1961, Classification of Barley Varieties Grown in the United States and Canada in 1958, Technical Bulletin No. 1224, U.S. Dept. of Agriculture.
2. Reid, D. A., and G. A. Wiebe, 1968, Barley: Origin, Botany, Culture, Winter Hardiness, Genetics, Utilization, Pests, Agriculture Handbook No. 338, U.S. Dept. of Agriculture. pp. 61 - 84.
3. Malting Barley Improvement Association, Milwaukee, Wisconsin, 1971, Barley Variety Dictionary.

COLOR: Nickerson's or any recognized color fan may be used to determine color of the described variety.

EXHIBIT D.

ADDITIONAL BOTANICAL DESCRIPTION OF B1203

B1203 is a two-rowed spring barley bred and developed by Busch Agricultural Resources, Inc. Berthoud, Colorado. It has a midseason maturity and excellent malting quality.

Juvenile growth habit is semiprostrate. Plant color at boot is green with a drooping flag leaf. Head shape is strap and lax with a straight neck and v-shaped to closed collar. Rachilla and glume hair is long and rachis edge is covered. Glume hair covering is confined to a band and the glume awns are equal to the length of the glume and are rough. Lemma awns are long and rough. Lemma teeth are few and hairs are absent. Seed is covered, midlong to long, semiwrinkled and aleurone is colorless or white.

B1203 is an intermountain two-rowed variety well adapted to the irrigated areas of Colorado, Idaho, Montana, Wyoming, Washington, Oregon and northern California. B1203 is a malting type barley currently in commercial scale testing. B1203 has been extensively tested under irrigation in Colorado, Idaho, Wyoming, and Montana. B1203 will be merchandized in all the intermountain states.

EXHIBIT E.

STATEMENT OF THE BASIS OF APPLICANT'S OWNERSHIP

Busch Agricultural Resources, Inc. is applicant for protection in this case being:

a. The incorporated business registered in Delaware for and within which regular employees have bred B1203.

b. The proprietory owner and intending commercial seller of B1203.

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EXHIBIT F.

QUALITY AND AGRONOMIC DATA B1203

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BARI B1203 AGRONOMIC SUMMARIES 1983-1987
IRRIGATED INTERMOUNTAIN TEST RESULTS

	YIELD (% KLAGES)						(23)	(12)	(18)	(21)
	(2)	(4)	(4)	(16)	(11)	(37)	HD.	MAT.	HT.	LDG.
VARIETY	83	84	85	86	87	X	JAN.1	1-5	CM	1-9
B1203	92	103	106	110	119	111	168	4.3	84	4.1
B1202	105	102	106	113	122	113	160	2.8	87	2.9
KLAGES	100	100	100	100	100	100	167	3.3	90	3.7
	(83)	(120)	(113)	(91)	(97)	(100)	=BU/A			
PREMIER	95	102	109	106	115	106	166	3.1	87	3.7
CLARK	100	100	103	95	110	102	165	4.0	89	4.6
HARRINGTON	89	102	107	103	111	104	166	3.0	87	3.4

1983-87: 37 STATION YEARS

Hd=Heading Date
Mat=Plant Maturity
Ldg=Plant Lodging

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"BARI B1203 MICROMALT SUMMARIES 1983-1986"

VARIETY	% PLUMP	PROTEIN MALT	PROTEIN WORT	W/T	EXT.	D.P.	D.P./ PROT.	A.A.
B1203	70	11.4	4.2	37	80.5	106	9.3	39
KLAGES	66	11.8	4.2	35	80.1	110	9.3	39

1983-1986: 14 STATION YEARS

W/T=Wort Protein/Total Protein
Ext.=Extract
D.P.=Diastatic power
D.P./Prot.=Diastatic power/Protein
A.A.=Alpha amylase

"ANHEUSER-BUSCH LARGE SCALE MALTING TRIALS 1984-1986"

ENTRY	MALT KERN 7/64	TTL PRO	EXTRACT F. GRD	EXTRACT F-C DIF	WORT VIS	W/T	WORT PRO	DP	AA	WORT CLR	WORT TUR
B1203	76	11.6	80.7	1.1	1.41	44.7	5.2	110	50.8	2.0	10
KLAGES	66	12.4	80.3	2.0	1.50	44.8	5.5	120	51.5	2.0	10

Malt Kern=Malt Plumpness
TTL Protein=Total Protein
F. Grd=Find Grind
F-C=Fine-Coarse Differences
Wort Vis=Wort Viscosity
W/T=Wort Protein/Total Protein
Wort Pro=Wort Protein
DP=Diastatic Power
AA=Alpha Amylase